

ABSTRACT OF THE DISCLOSURE

Arbitration of multiple transponders, such as RFID tags, occurs in an interrogation field. The arbitration process is custom-tailored for individual applications, under software control, by the transponder reader or tag reader. Different wake-up slots are calculated for each tag during successive transmission cycles based upon the tag ID and the transmission cycle number. The tag reader may send a special fast read command to the tag which includes a read request and communications control parameters including the number of time slots for transponder communications, the number of transmissions that an individual transponder is allowed to issue, and the data rate at which the reader communicates to the transponder. The tag reader may also send a special command to a tag to read its data and cause the tag to become decoupled from the environment. Additional schemes are provided to halve the number of active tags in each transmission cycle and to selectively inactivate designated groupings of tag, thereby improving discrimination of the tags in the interrogation field. The tags may be selectively placed in either a tag-talk-first mode or a reader-talk-first mode.